

REPORT BY THE
AUDITOR GENERAL
OF CALIFORNIA

**THE DEPARTMENT OF GENERAL SERVICES
CAN REDUCE RADIO COMMUNICATION COSTS
TO STATE AGENCIES**

REPORT BY THE
OFFICE OF THE AUDITOR GENERAL
TO THE
JOINT LEGISLATIVE AUDIT COMMITTEE

P-275

THE DEPARTMENT OF GENERAL SERVICES
CAN REDUCE RADIO COMMUNICATION COSTS
TO STATE AGENCIES

SEPTEMBER 1983

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September 22, 1983

P-275

Honorable Art Agnos, Chairman
Members, Joint Legislative
Audit Committee
State Capitol, Room 3151
Sacramento, California 95814

Dear Mr. Chairman and Members:

The Office of the Auditor General presents its report concerning radio services provided by the Department of General Services' Communications Division.

Respectfully submitted,



THOMAS W. HAYES
Auditor General

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	i
INTRODUCTION	1
CHAPTER	
I THE COMMUNICATIONS DIVISION CAN REDUCE THE COSTS THAT STATE AGENCIES ARE PAYING TO DEVELOP AND <u>MAINTAIN RADIO COMMUNICATION SYSTEMS</u>	7
THE DIVISION IS NOT COORDINATING AND STANDARDIZING THE STATE'S RADIO EQUIPMENT REQUIREMENTS	7
THE DIVISION DELAYS SOME RADIO ENGINEERING AND INSTALLATION PROJECTS	15
THE DIVISION'S TECHNICIANS TAKE LONGER TO REPAIR SOME RADIO EQUIPMENT THAN TECHNICIANS EMPLOYED BY PRIVATE COMPANIES	19
CONCLUSION	24
RECOMMENDATION	25
II THE COMMUNICATIONS DIVISION'S CHARGES FOR RADIO SERVICES DO NOT ACCURATELY <u>REFLECT THE COST OF SERVICES PROVIDED</u>	29
CONCLUSION	37
RECOMMENDATION	37
RESPONSE TO THE AUDITOR GENERAL'S REPORT	39
AUDITOR GENERAL'S COMMENTS ON THE DEPARTMENT OF GENERAL SERVICES' RESPONSE	51

SUMMARY

The Department of General Services' Communications Division (division) is not providing radio services to state agencies at the lowest cost to the State. The division is not coordinating and standardizing the State's radio equipment needs and delays completion of some radio engineering and installation projects. Moreover, division technicians take longer to repair some radio equipment than technicians in private industry. In addition, the division's charges for radio services do not accurately reflect the cost of services provided, and it does not have a standard methodology for comparing its rates with rates in private industry. Therefore, the division cannot make an accurate comparison of its rates for radio services with rates in private industry.

Lack of Coordination and Standardization

The division approves state agencies' requests to purchase various quantities of identical or similar radio equipment throughout the year. If the division consolidated these requests, the State could obtain larger discounts for volume purchases of radio equipment. For example, we estimate that if the division had consolidated purchases for a specific type of portable radio, the State could have saved approximately \$77,000.

In addition, the division allows state agencies to order too much special radio equipment. Approximately 50 percent of mobile radios and 35 percent of fixed radio stations used by state agencies are special radio products.

Since special radio equipment is usually more expensive than standard radio equipment, ordering special equipment results in extra cost to the State. Special radio equipment also takes longer to repair than standard equipment.

Delayed Radio Services

The division could improve its efficiency in completing radio engineering and installation projects and in repairing radio equipment. Because of delays, costs for these services are higher than necessary and operations of state agencies may be adversely affected.

Completion of some radio engineering and installation projects is delayed because the division lacks a project control system and because of inadequacies in the division's Engineering Section. These inadequacies include a lack of drafting and engineering standards, lack of a training program for engineers, and inefficient organization of engineers.

Moreover, division technicians take longer to repair some radio equipment than technicians employed by private industry. In the sample of repairs we reviewed, division technicians took longer to repair four of five types of radio equipment. If division technicians had completed the repairs in our sample as quickly as did the private technicians, the division could have charged state agencies \$106,400 less for these repairs. In fiscal year 1981-82, repair of these five types of equipment accounted for 55 percent of the division's equipment repair hours. Division technicians take longer to repair radio equipment primarily because the division has no system for monitoring technicians.

Inadequate Ratesetting Policies

The division's charges for services do not accurately reflect the division's cost of providing the services. During fiscal years 1977-78 through 1981-82, the division overcharged state agencies approximately \$3.6 million for telephone services and undercharged agencies nearly \$1.8 million for radio services. The division's fund balance at the end of fiscal year 1981-82 was approximately \$3 million. Further, for its radio services, the division overcharged agencies for radio maintenance and repair and undercharged agencies for radio engineering, and radio installation and modification. These discrepancies between costs and charges occurred because the division has not accurately calculated its rates.

Further, because the division's charges do not reflect its actual costs, the division's comparison of its service rates with rates in private industry is not accurate. The division also lacks a standard methodology for comparing its service rates with rates in private industry. Hence, the division cannot make an accurate assessment of its rates for radio services.

INTRODUCTION

The California Government Code authorizes the Department of General Services to provide communications systems to state agencies. The Department of General Services' Communications Division (division) provides services for radio, telephone, teletype, closed circuit television, and data transmission facilities, and any special communications facilities needed by the State. To provide these services, the division is divided into four sections: Operations, Telephone/Data Services, Engineering, and Maintenance. The Operations Section provides overall management and administration of the division, while the Telephone/Data Services Section provides telephone and data services to agencies.

The Engineering Section is responsible for planning, designing, and installing radio systems to meet the radio communication needs of individual state agencies. Approximately 31 engineers, all located in Sacramento, currently provide these services. Services these engineers provide include preparing engineering instructions for the installation of new radio equipment or the replacement of existing radio equipment. Engineering and installation

projects vary in complexity from installation of a simple piece of equipment to modification of an agency's radio system.

The Engineering Section is also responsible for reviewing, evaluating, and approving state agencies' requests for radio equipment. An agency that needs radio equipment submits a purchase request to the division. The Engineering Section reviews and evaluates the purchase request, and, if it approves the request, prepares equipment specifications. The Engineering Section also reviews all radio equipment bids and recommends the vendor to be awarded the purchase. The Department of General Services' Office of Procurement is responsible for purchasing the equipment from the vendors.

The division's Maintenance Section installs, modifies, maintains, and repairs radio equipment for state agencies. Currently, repair of state-owned radio equipment accounts for approximately 70 percent of all technician time that the division bills to state agencies. About 106 technicians and 10 area supervisors are stationed at radio repair shops located throughout the State.

The division provides services to agencies on a fee-for-service basis. Each year, the division establishes billing rates based on its estimated operating costs. The

division bills agencies an hourly rate or a fixed annual amount, depending upon the type of service provided. The division charges an hourly rate for engineering services, billing for the number of hours that radio engineers spend on a project. Installation and modification services are also billed at an hourly rate. On the other hand, the division bills state agencies fixed amounts on a monthly or quarterly basis to cover the annual maintenance and repair of their radio equipment.

To determine each agency's annual maintenance and repair charge, the division estimates the number of hours of service that it will spend maintaining and repairing each type of radio equipment in the agency's inventory. To make this estimate, the division determines the average number of hours of service provided for each piece of the agency's equipment over the two previous years and multiplies this average by the number of pieces of equipment that the agency estimates it will use during the ensuing year. The division then multiplies this estimated number of hours of service by the hourly billing rate for radio technicians. In fiscal year 1981-82, the division's hourly billing rate for radio technicians was \$56 per hour.

In fiscal year 1982-83, the division had budgeted expenditures of \$53.4 million. Of this amount, approximately \$14 million was for radio engineering and maintenance services.

Most of the remaining expenditures were for telephone services and the 911 Emergency Telephone Number Program, which had budgeted expenditures of approximately \$21.5 million and \$17 million, respectively.

SCOPE AND METHODOLOGY

In this audit, we focused on the efficiency of the radio engineering and radio maintenance services provided by the Communications Division. We reviewed the division's coordination and standardization of radio equipment requirements; the time taken to complete radio engineering and installation projects; the time taken for technicians to repair radio equipment; and the appropriateness of the rates for radio service charged to state agencies.

To evaluate the division's coordination and standardization of the State's radio equipment, we reviewed policies and records related to equipment requests by state agencies. We also reviewed equipment purchase requests for fiscal year 1980-81.* We interviewed personnel from the division, from the Office of Procurement, and from two radio

* We reviewed purchase requests for fiscal year 1980-81 because the Governor's freeze on equipment purchases during fiscal year 1981-82 limited purchases in that year.

equipment vendors. In addition, we obtained information related to equipment procurement in two other states, Florida and Illinois.

To determine and evaluate the time the division takes to complete radio engineering and installation projects and to repair equipment, we reviewed the division's policies and procedures for providing radio services, examined division records related to radio maintenance services, and interviewed division officials. We also interviewed staff at various state agencies receiving these services. In addition, we visited three private radio service shops located in northern and southern California to determine the amount of time the shops took to complete randomly selected radio repairs. We also interviewed personnel at each of the private shops to assess the efficiency of the services provided by those shops.

To evaluate the appropriateness of the division's charges for its radio services, we examined its accounting procedures and records to determine whether the charges accurately reflect the costs of radio services provided. We also reviewed the methodology that the division uses when comparing its rates with service rates charged by private industry.

To further aid us in evaluating the efficiency of the radio services provided by the division, we hired an engineering consulting firm, Michaud, Cooley, Hallberg, Erickson & Associates, Inc. The firm provided us technical advice on the appropriateness of the division's engineering, and installation and modification services.

CHAPTER I

THE COMMUNICATIONS DIVISION CAN REDUCE THE COSTS THAT STATE AGENCIES ARE PAYING TO DEVELOP AND MAINTAIN RADIO COMMUNICATION SYSTEMS

The Communications Division is not taking advantage of opportunities to reduce the purchase price of equipment and to improve the efficiency of its engineering and maintenance operations. Specifically, the division is not adequately coordinating and standardizing the State's radio equipment requirements. Also, the division is delaying some radio engineering and installation projects and the division's technicians appear to be less efficient than technicians in the private sector. As a result of these weaknesses, state agencies are paying excessive prices for the purchase and installation of radio equipment and the operations of state agencies may be curtailed or delayed.

THE DIVISION IS NOT COORDINATING AND STANDARDIZING THE STATE'S RADIO EQUIPMENT REQUIREMENTS

The division is not coordinating radio equipment purchases, and is approving the purchase of too much special radio equipment. As a result, state agencies are paying excessive prices for radio equipment and both the division and

the Office of Procurement are processing unnecessary quantities of purchasing documents.

The Division Is Not Coordinating
Radio Equipment Purchases

In order for the Office of Procurement to consolidate radio equipment purchases and obtain volume price discounts, the division should coordinate purchases of radio equipment by state agencies. We found, however, that the division has not coordinated these purchases; instead it has approved numerous purchases of similar or identical radio equipment in varying quantities throughout the fiscal year. During fiscal year 1980-81, the division reviewed and approved approximately 315 purchase requests which resulted in purchases of \$5.1 million in radio equipment.

We reviewed a sample of 98 purchase requests for mobile and portable radios. These types of radios represent \$2.7 million (48 percent) of the total cost of radio equipment purchased by state agencies in fiscal year 1980-81. We found that during fiscal year 1980-81 state agencies submitted, and the division approved, 22 purchase requests for mobile radios with identical or similar features and 76 purchase requests for portable radios with identical or similar features. Furthermore, the division allowed some agencies to submit numerous purchase requests for small quantities (1-10 units) of

similar or identical radio equipment during the fiscal year. For example, one agency, instead of consolidating its purchase requests, submitted 12 purchase requests for small quantities (1-6 units) of similar or identical portable radios throughout the fiscal year. The division approved these purchase requests.

We interviewed the staff responsible for radio equipment at three state agencies. They told us that in the past the division has not encouraged agencies to coordinate radio equipment purchases.

Because it does not coordinate purchases of similar or identical radio equipment, the division cannot advise the Office of Procurement of the State's projected radio equipment needs for a specific period of time such as, for example, a fiscal year. Therefore, the Office of Procurement cannot consolidate purchases and obtain price discounts usually offered by vendors for larger orders.

We interviewed two of the State's primary vendors of radio equipment. These vendors sell radio equipment such as mobile and portable radios to the State of California and other states. Both vendors said that California would benefit if its radio equipment needs were coordinated in order to consolidate equipment purchases. They stated that discounts are generally

higher for orders of large quantities (greater than 100) in comparison with small quantities (less than 100). For example, the two vendors currently discount their prices for radio equipment up to 30 percent for quantities less than 100. For quantities over 100 one vendor discounts prices up to 50 percent, while the other vendor discounts prices up to 42 percent. In addition, the second vendor provides discounts of up to 52 percent for quantities of 200 or more.

However, because the division has not coordinated purchases of radio equipment, the Office of Procurement has not been able to order in larger quantities and so obtain the higher discounts. For example, during fiscal year 1980-81, the Office of Procurement issued 44 purchase orders for small quantities (less than 100) of a specific type of portable radio and 3 purchase orders for larger quantities (greater than 100) of similar radios. The average cost per unit ordered in small quantities was \$1,117, compared to \$869 per unit ordered in larger quantities, a difference of \$248 per unit. If the division had consolidated the smaller purchases into larger quantities, we estimate that the State could have saved approximately \$77,000.

A similar situation involved mobile radios. The Office of Procurement issued 13 purchase orders for small quantities of a specific type of mobile radios at an average

cost of \$1,351 per unit, and 1 purchase order for a large quantity of similar mobile radios at an average cost of \$1,166 per unit, a difference of \$185 per unit. If all radios had been purchased in large quantities, the State could have saved approximately \$9,000.

Other states have benefited by consolidating purchases of identical or similar radio equipment. Both Florida and Illinois coordinate their respective radio equipment needs annually. As a result, these states are able to consolidate radio equipment purchases for the year, thus maximizing price discounts provided by vendors of radio equipment. Administrators from both the states told us that they are receiving up to a 50 percent price discount on purchases of radio equipment.

In addition to dollar savings on purchases, coordinating purchases of radio equipment could also save the State money in personnel costs. If the division planned and coordinated radio equipment needs, both the division and the Office of Procurement would benefit by processing fewer purchase requests, bids, and purchase orders. According to management at the division and the Office of Procurement, as a result of coordinating purchases, the time required for processing purchases of radio equipment would decrease at both agencies, thus requiring less staff time.

The Division Allows
Agencies To Order Too
Much Special Radio Equipment

One of the goals of the division is to minimize specialized communication systems and equipment to ensure maximum standardization. However, our engineering consultant reported that the division allows state agencies to order too much special radio equipment.* The consultant reviewed eight purchase requests, all of which were requests for special radio equipment. The consultant questioned whether the agencies really needed the special equipment. Based on his experience in his office, he stated that most engineering designs specify standard products.

The consultant stated that the division, rather than selecting the equipment that meets the agencies' operational needs at the lowest cost, allows agencies to specify the types of radio equipment they want. According to the supervisor of the Engineering Section, approximately 50 percent of the mobile radios and 35 percent of the fixed radio stations that state agencies use are special radio products.

* Special radio equipment is standard equipment that the vendor has modified to meet unique requirements of purchasers. Standard radio equipment is normally carried by a vendor whereas special radio equipment is not.

Ordering special radio equipment is costly to the State in both money and time. Our consultant stated that special radio equipment is usually more expensive to purchase than standard equipment. According to a vendor of radio equipment, special radio products may cost up to 200 percent more than standard radio products. Furthermore, the supervisor of the Maintenance Section told us that it generally takes division technicians longer to repair special radio equipment than to repair standard radio equipment.

The Division's Reason For Not
Coordinating and Standardizing
Radio Equipment Requirements

The chief of the division acknowledged that the division has made only minimum effort to coordinate purchases of radio equipment and standardize the type of radio equipment that agencies purchase. However, he believes that the division does not have clear authority to coordinate and standardize radio equipment requirements in the State.

We believe, however, that the division does have such authority. Section 4503 of the State Administrative Manual states that the division is to review and evaluate communication facilities and equipment used by state agencies to ensure that their needs are being met at the lowest cost to the State. Furthermore, officials we contacted in state

agencies and in the Office of Procurement believe that the division does have this authority. We interviewed the staff responsible for radio equipment at three state agencies. They stated that they cannot purchase radio equipment without the approval of the division. An official in the Office of Procurement agreed that the division does have authority to coordinate and standardize the State's radio requirements.

We believe that the division needs to assert its authority in this area. The division can begin to do so by enforcing provisions in the State Administrative Manual that require state agencies using radio equipment to annually prepare and file with the division a five-year communication plan. According to the supervisor of the Engineering Section, only 2 of 29 agencies have submitted these plans to the division in the past five years. Staff persons in three agencies told us that the division has not encouraged agencies to submit communication plans. The division could require agencies to specify their radio communication needs in these plans. These plans would enable the division to forecast and coordinate the purchase of the most economical and practical radio equipment, thereby maximizing price discounts. According to our consultant, these five-year communication plans would also assist the division in determining whether the agencies need special radio equipment.

THE DIVISION DELAYS SOME RADIO
ENGINEERING AND INSTALLATION PROJECTS

Delays in completing some radio engineering and installation projects also hinder the division in providing radio services at the lowest cost. Delays have occurred due to lack of a project control system and other inadequacies in the division's Engineering Section. As a result of delays, staff costs are unnecessarily high and agencies using the division's radio services may have to curtail or delay operations.

Our consultant stated that in order to provide engineering and installation services to agencies at the lowest cost to the State, the division should ensure that these services are provided in a timely manner. However, he identified instances where the division took longer than necessary to complete radio projects. For example, on one job, installation instructions sent to the field technician were incomplete. Because instructions for installing a battery charger, battery bank, and wiring were missing, the technician was forced to leave the job and return the instructions to the engineer for additional work, then later restart the job. This extra staff work resulted in higher job costs and a delay in job completion.

In addition, our consultant stated that agency operations are often adversely affected when project completion is delayed. He concluded that, in some cases, radio communications may be impaired or impossible until equipment installation is completed. According to the consultant, at those times, agency operations may have to be curtailed, delayed, or cancelled.

According to our consultant, the primary reason that some of the division's engineering and installation projects take more time than necessary is the division's lack of a project control system. A project control system includes project planning, estimation of job completion dates, assignment of job control to one person, and provision for information feedback. Our consultant noted that although a variety of conditions may cause a project to be delayed, if a project control system is in place, causes for delays can be anticipated and possibly avoided.

In addition to the lack of a project control system, our consultant also identified other inadequacies in the Engineering Section. Our consultant found instances where engineering instructions to field technicians were either excessively detailed or insufficiently detailed. For example, one set of instructions contained pages of detailed step-by-step descriptions of routine procedures, none of which

were necessary for radio technicians to complete the installation. Such unnecessary instructions needlessly consume engineers' time, delay completion of the project, and result in higher costs.

Inadequate engineering instructions occur, in part, because the division lacks sufficient engineering standards, such as standard installation procedures and drafting symbols. Also, engineers with insufficient experience or training sometimes perform design work. Because the division does not have enough standard installation procedures, engineers must write out instructions in each design. This method often results in errors or an inappropriate amount of detail. In addition, engineers continuously rewrite these instructions rather than reference standard procedures by number. The division's current practice requires more time, which results in delay and higher charges to state agencies for division services. Further, when engineers with little experience perform design work, they may not know what and how much information the installation technicians need. Consequently, the engineering design may be inadequate. Our consultant felt that the division could provide pertinent training for engineers through an in-house training program.

The consultant also discovered instances of engineers' installation directions that could not be followed

by the field technicians because actual conditions at the installation site differed from those described in the instructions. A division staff member who supervises field technicians also told us that this problem exists. According to our consultant, when directions are not appropriate for the installation site, they must be returned to the engineer, resulting in delay, extra staff time, and consequent higher costs to state agencies.

Moreover, according to our consultant, the method by which the division organizes the engineers hinders them from becoming familiar with installation sites. The division organizes engineers in groups, each group serving one or several agencies. Each engineer may work on projects located at any of over 400 major site locations throughout the State. Because the division groups its engineers according to agency, the engineers are regularly performing designs for sites they have never visited and for which out-of-date information is available. In addition, engineers sometimes spend time solving technical problems unique to a site that have been solved previously by other engineers who were designing projects for other agencies. These conditions may cause delay in projects. Our consultant felt that by reorganizing engineers according to geographic region rather than according to agency, the division could improve engineers' familiarity with job sites.

Management personnel at the division agree that more engineering standards are needed and that the current organization of engineers contributes to problems. Consequently, they are developing additional engineering and drafting standards, and they are considering various methods of reorganizing engineers.

THE DIVISION'S TECHNICIANS
TAKE LONGER TO REPAIR SOME
RADIO EQUIPMENT THAN TECHNICIANS
EMPLOYED BY PRIVATE COMPANIES

Technicians in the division, on the average, take longer to repair some radio equipment than technicians employed by private companies. If division technicians had completed the equipment repairs we reviewed as fast as private technicians, the division could have reduced the time to complete the repairs by 1,900 hours. Such a reduction represents a potential savings to state agencies of \$106,400.

In consultation with management personnel in the division and in private industry, we identified five types of radio equipment that are commonly repaired by both the division and private repair shops. The five types, as defined by the division, are the following: mobile radios (a transmitter/receiver unit installed in a vehicle), portable radios (a hand-held transmitter/receiver unit), fixed radio stations (a transmitter/receiver unit installed at a specific location),

paggers (a portable receiving unit), and remote controls (a desk or a console set controlling up to eight fixed stations). Repairs for these five types of equipment represented 55 percent of the division's equipment repair hours in fiscal year 1981-82.

We selected a sample of repairs for each type of equipment at division repair shops in three geographic areas and at three private repair shops located in the same geographic areas. We determined the average amount of time taken for these repairs by technicians in the division and compared this with the average time private technicians took to repair the same type of equipment. Table 1 shows the results of our calculations.

TABLE 1

REPAIR TIME FOR COMMUNICATIONS DIVISION TECHNICIANS
COMPARED WITH REPAIR TIME FOR PRIVATE TECHNICIANS
(Average Hours Per Repair)

<u>Type of Radio Equipment</u>	<u>Private Technicians</u>	<u>Division Technicians</u>	<u>Difference</u>
Mobile Radio	1.9	2.3	+0.4 (+21.1%)
Portable Radio	1.2	1.9	+0.7 (+58.3%)
Fixed Station	3.8	3.4	-0.4 (-10.6%)
Pager	1.1	1.2	+0.1 (+09.1%)
Remote Control	2.0	2.7	+0.7 (+35.0%)

As the table indicates, we found that the average repair time for division technicians exceeded that of private technicians for four of the five types of equipment. The

average time for division technicians to repair portable radios, for example, exceeded the repair time of private technicians by 58.3 percent. To repair remote control equipment, division technicians took 35.0 percent longer than private technicians. Only in repairing fixed station equipment did division technicians take less time than private technicians, a difference of 10.6 percent.

When we compared the total time division technicians took to repair the equipment in our sample with the total time taken by private technicians to repair the same type of equipment, we found that division technicians took 1,900 hours (16.6 percent) longer for the repairs. Division technicians took 11,474 hours to complete the repairs, private technicians took 9,574 hours. Thus, we estimate that if division technicians in the three districts we reviewed had completed repairs as fast as the private technicians in our sample, the division could have reduced the time taken to complete repairs we sampled by 16.6 percent. Furthermore, by multiplying the 1,900 hours by the maintenance and repair service rate the division charged in fiscal year 1981-82 (\$56 per hour), we estimate that if the division technicians had been as efficient as the private technicians, the division could have billed state agencies \$106,400 less for these repairs.

Repairs that take excessive time also reduce the total number of repairs or installations that division technicians can perform. According to the division's assistant chief and the supervisor of the Maintenance Section, the technicians could use additional time to work on equipment installation projects. The division's records show that during fiscal year 1982-83, the division completed approximately 1,439 installation projects but still had approximately 1,950 projects in various stages of completion at the end of the fiscal year.

To determine why division technicians take longer than private technicians to repair radio equipment, we compared the division's management techniques with those of private industry and found differences in the methods of monitoring technician efficiency. Although we did not find an industry standard for repair time, each private company we contacted had developed its own informal repair standards. These private companies use such standards to regularly monitor the productivity and repair times of their technicians in order to evaluate technician efficiency. Technicians who take too much time to complete repairs increase costs and reduce profits. One owner of a private radio company stated that he also uses evaluations of repair time to aid him in giving his employees promotions and salary increases.

In contrast, the division does not monitor technician repair time to evaluate technician efficiency. Moreover, the division has no policy or procedure requiring area supervisors to review technician repair times. The supervisor of the Maintenance Section agreed that division technicians are not adequately monitored. This lack of monitoring, he said, could contribute to longer average repair time.

The division's assistant chief told us that because division technicians service a wider variety of types, models, and brands of radio equipment than do technicians in private industry, division technicians are unable to specialize by equipment types to the same degree as technicians in the private sector. This lack of specialization contributes to longer repair times. However, managers of two of the three private shops we contacted stated that they also perform repairs on many types, models, and brands of equipment. The owner of the third private shop we reviewed, however, agreed that the variety of radio equipment used by state agencies could contribute to longer average repair times for division technicians.

The division has not developed a standard for measuring technician efficiency. Although the division prepares an annual report that identifies the average repair

time by type of equipment for each state shop, the division uses this report primarily as a budget tool rather than as a standard for evaluating technician efficiency. The supervisor of the Maintenance Section and the division's assistant chief agreed that the division cannot objectively monitor and evaluate technician repair time without a standard.

Language contained in the Supplemental Report of the 1983 Budget Act requires the Department of General Services to develop workload standards for telecommunications technicians who repair and maintain radio equipment. We believe that these standards should help the division in monitoring technician efficiency.

CONCLUSION

Due to weaknesses within the Department of General Services' Communications Division, state agencies are not provided necessary communication services at the lowest cost to the State. The division allows state agencies to purchase identical or similar radio equipment throughout the year rather than consolidating purchases to obtain discounts for larger volume orders. Further, instead of selecting the most appropriate radio equipment at the lowest cost, the division allows agencies to specify the

types of radio equipment they want. Much of this equipment is special equipment, which is more expensive and takes longer to repair than standard radio equipment.

The division also lacks a project control system for engineering and installation projects. This weakness, along with inadequate engineering standards, insufficient training for engineers, and inadequate organization of engineers, results in delays in completing radio projects. Furthermore, because the division lacks adequate procedures for monitoring technicians, the division cannot ensure that technicians are completing repairs in an efficient manner.

Until the division implements adequate controls to alleviate these conditions and asserts its authority to coordinate and evaluate state agencies' radio communication needs, it cannot provide radio services at the lowest cost to the State.

RECOMMENDATION

To ensure that the State's radio equipment requirements are coordinated and standardized, the

Department of General Services' Communications Division should do the following:

- Require that agencies prepare and file five-year communication plans that would enable the division to assess the state agencies' annual radio equipment needs;
- Work with the Office of Procurement to develop procedures to consolidate purchases of radio equipment;
- Assess the agencies' needs for special radio equipment in order to determine whether standard equipment would meet the agencies' requirements; and
- Set goals to convert to the use of standard equipment in a majority of designs.

To ensure that radio engineering and installation projects are not delayed, the division should do the following:

- Implement a project control program for engineering and installation projects. Such a program should include project planning,

information feedback, and control for each phase of major projects;

- Develop additional drafting and engineering standards;
- Develop an in-house training program for engineers; and
- Consider reorganizing the Engineering Section.

To ensure that technicians complete repairs efficiently, the division should adopt procedures to monitor technicians. These procedures should include development of workload standards as mandated by the Legislature.

CHAPTER II

THE COMMUNICATIONS DIVISION'S CHARGES FOR RADIO SERVICES DO NOT ACCURATELY REFLECT THE COST OF SERVICES PROVIDED

The Communications Division's charges for its services do not accurately reflect the cost of those services. During fiscal years 1977-78 through 1981-82, the division charged state agencies for radio services approximately \$1.8 million less than the division's costs for providing radio services. On the other hand, the division charged state agencies for telephone services approximately \$3.6 million more than the division's costs for providing telephone services. Further, for radio services, the division overcharged for radio maintenance and repair, and it undercharged for radio engineering and for radio installation and modification. The division also does not have a standard methodology for comparing its rates with rates in private industry. Because of these weaknesses, the division's charges to state agencies do not equitably reflect services provided, and the division cannot make an accurate comparison of its rates for radio services with rates in private industry.

Discrepancy Between Costs and Charges

The division recovers the costs of the radio and telephone services it provides through direct charges to the state agencies that use these services. To ensure that agencies are appropriately billed for services they receive, the division's charges should accurately reflect the cost of the services provided. We found that deficiencies in the division's ratesetting policies have resulted in charges to agencies that do not accurately reflect the division's cost of providing the services.

The division has undercharged for radio services and overcharged for telephone services. Table 2 on the following page shows the undercharges and overcharges for these services during fiscal years 1977-78 through 1981-82. As the table shows, during the five-year period the division consistently undercharged for its radio services and overcharged for its telephone services. The division charged for its radio services approximately \$1.8 million less than its actual operating costs, but for its telephone services the division charged approximately \$3.6 million more than its operating costs.

TABLE 2
UNDERCHARGES AND OVERCHARGES
FOR RADIO SERVICES AND TELEPHONE SERVICES^a

<u>Fiscal</u> <u>Year</u>	<u>Undercharges</u> <u>Radio</u> <u>Services</u>	<u>Overcharges</u> <u>Telephone</u> <u>Services</u>
1977-78	\$ 595,000	\$ 25,000
1978-79	268,000	793,000
1979-80	367,000	1,139,000
1980-81	173,000	252,000
1981-82	<u>385,000</u>	<u>1,404,000</u>
Total ^b	<u>\$1,788,000</u>	<u>\$3,613,000</u>

^a These figures were obtained from the Department of General Services' financial statements for the division. They reflect actual cash transactions for the periods indicated. However, the cost of equipment has been allocated over the useful life of that equipment rather than being charged as an expense during the year the equipment was purchased.

^b These figures represent the total undercharges and overcharges for the five-year period. They do not represent the current fund balance for each type of service.

The division's fund balance at the end of fiscal year 1981-82 was approximately \$3 million. The assistant chief of the division stated that approximately \$1.5 million of this fund balance is used to pay for salaries and operating costs until receipts are received from state agencies.

As a result of the division's charges, agencies that used the division's radio services did not pay the full cost of the services they received. Conversely, agencies that used the division's telephone services paid more than the division's

cost of providing the services. Additionally, because some agencies are funded totally or partially by special funds allocated for specific purposes, such as the State Transportation Fund or State Water Project Funds, overcharges to these agencies result in less money available for the other activities supported by the special funds. On the other hand, undercharges to these agencies transfer the balance of the division's costs for these services to agencies supported by the State's General Fund.

We also found discrepancies between costs and charges within the specific area of radio services. Our examination of the division's cost and billing data for radio services revealed that the division has undercharged for radio engineering and for radio installation and modification services, and overcharged for its radio maintenance and repair services. Table 3 on the following page shows our estimates of the division's undercharges and overcharges for radio services for fiscal years 1979-80 through 1981-82.

TABLE 3
ESTIMATED UNDERCHARGES AND OVERCHARGES
FOR RADIO SERVICES^a

<u>Fiscal Year</u>	<u>Undercharges</u>		<u>Overcharges</u>
	<u>Radio Engineering</u>	<u>Radio Installation and Modification</u>	<u>Radio Maintenance and Repair</u>
1979-80	\$ 368,000	\$226,000	\$ 207,000
1980-81	391,000	211,000	411,000
1981-82	<u>675,000</u>	<u>141,000</u>	<u>413,000</u>
Total ^b	<u>\$1,434,000</u>	<u>\$578,000</u>	<u>\$1,031,000</u>

a Because the division changed its method of calculating charges, we have comparable data for three fiscal years only. Because these figures for radio services are estimates, they do not exactly match figures in Table 2.

b These figures represent the total undercharges and overcharges for the five-year period. They do not represent the current fund balance for each type of service.

As the table shows, for fiscal years 1979-80 through 1981-82, the division undercharged agencies that used its radio engineering and radio installation and modification services an estimated \$1.4 million and \$578,000, respectively. During the same period, the division charged agencies that used its radio maintenance and repair services an estimated \$1 million more than the costs incurred in providing these services.

These discrepancies between costs and charges have occurred because the division has not accurately determined its service rates. For example, the division has overcharged state agencies for its radio maintenance and repair services because

it overestimated the number of hours its technicians would work to provide these services. Although the division has experienced a downward trend in the number of hours per year maintaining and repairing radio equipment, the division did not adjust its fixed maintenance charges to compensate for the decrease in labor hours.

In addition, the division has undercharged for its radio engineering and radio installation and modification services because the division has not accurately forecast vacant staff positions. The division sets hourly service rates by dividing the total cost of providing the service by the total number of staff hours available for each type of service. If the division does not accurately forecast vacant staff positions, the total estimated staff hours available will be incorrect and the rates charged for these services will not be accurate.

A deputy director from the Department of General Services agreed that the division's charges should accurately reflect the costs incurred for each of the division's services. He stated that corrective action is being taken to adjust the division's charges for services.

Inaccurate Rate Comparison

A division policy is to develop service rates that are comparable to or less than rates in private industry. The Director of the Department of General Services requires the division, as part of the division's budget plan, to annually compare its charges for radio services with charges for similar services by private companies.

As part of the comparison, the division compares the fixed annual amounts that it charges agencies for maintenance and repair services for a selected sample of equipment with charges quoted by two private radio services companies for similar services. The rate comparison included in the division's fiscal year 1983-84 budget hearing document shows the division's radio maintenance and repair charges to be lower than private industry's quoted charges for all three types of equipment selected.

We believe, however, that the division's comparisons of its rates with rates in private industry are deficient in two important respects. First, because the division's service charges do not reflect the actual cost of services provided, an accurate comparison with rates in private industry is not possible. In addition, we found that the division lacks a

standard methodology for uniformly selecting the models of equipment it uses in the comparison.

The service charges quoted by the private vendors cover several different models of radio equipment. The equipment the division selects to compute its service charges may be the same as or different from the equipment models the private vendors use. Because the division's fixed rates fluctuate depending on the specific models of equipment serviced, the models the division selects for the sample could have significant impact on the comparison. For example, for the rate comparison prepared for fiscal year 1983-84, the division used a different sample of models of mobile radios than it used in the rate comparison in the three preceding years. The fiscal year 1983-84 comparison showed the division to have lower charges than those quoted by private industry for mobile radios. However, if the division had used the same models of radios as it used in rate comparisons in the three years, the division's fiscal year 1983-84 charges would have been higher than those quoted by private industry. Hence, without a standard methodology for selecting a sample of equipment, the division's rate comparison does not provide an accurate assessment of its charges for radio services as compared with private industry.

CONCLUSION

The Department of General Services' Communications Division needs to improve its ratesetting policies. Presently, these policies do not ensure that agencies are billed for the actual costs of services provided. As a result, the division has overcharged agencies for certain services and undercharged for other services. In addition, the method by which the division compares its rates with those of private industry is inadequate. Therefore, the division cannot accurately assess the reasonableness of service charges to state agencies.

RECOMMENDATION

To ensure that its charges for services are equitable, the Department of General Services' Communications Division should review the operating results for each type of service separately and adjust the rates for those services generating overcharges or undercharges; and define a standard methodology for selecting the models of equipment to be included in its rate comparison.

We conducted this audit under the authority vested in the Auditor General by Section 10500 et seq. of the California Government Code and according to generally accepted government auditing standards. We limited our review to those areas specifically contained in the audit request.

Respectfully submitted,


THOMAS W. HAYES
Auditor General

Date: September 6, 1983

Staff: Steven L. Schutte, Audit Manager
Dennis Sequeira
Janice Shobar Simoni
Stephan J. Cohen
Bernice D. Ericksmoen
Stephen R. Schrock, CPA

Memorandum

Date : August 25, 1983

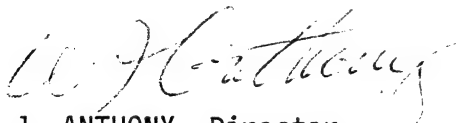
File No. :

To : Thomas W. Hayes
Auditor General
660 J Street - Suite 300
Sacramento, CA 95814

Subject :

From : **Department of General Services**

We have reviewed your report entitled "The Department of General Services can Reduce Radio Communication Costs to State Agencies." We utilized the staff of the Office of Telecommunications (formerly Communications Division) to prepare our comments. We do not disagree with most of the recommendations made. However, we have taken exception to some of the analyses made and the conclusions drawn. We hope that these replies are read and analyzed prior to drawing any conclusions to the report.



W. J. ANTHONY, Director
Department of General Services

I CONCUR:



SHIRLEY R. CHILTON
Agency Secretary

RESPONSE TO AUDITOR GENERAL'S REPORT

The Office of Telecommunications has reviewed this report and, in most cases, does not disagree with the recommendations made. It does, however, take exception to some of the analyses made and the conclusions drawn.

The two most notable exceptions taken are in the areas of:

1. Technician Productivity
2. Charges for Service

Each area of the report will be dealt with, but the following key points should be recognized:

- . Technicians have been decentralized throughout the State to provide for a rapid response to the repair of public safety equipment. This decision was made from a service, not a cost or control aspect. The attendant problems of supervision and workload were considered secondary to the maintenance of the public safety systems they serve.
- . Charts describing charges for service portray dramatic over and under charge totals. When these sums are calculated as a portion of the yearly budget, it can be seen that this represents less than 4.5 percent of the budget total, which is well within an acceptable margin of error, given the fact that rates are established 14 to 16 months in advance of any budget year.

It is hoped that the Office of Telecommunications replies are read and analyzed prior to the drawing of any conclusions.

1. Allegation:

The Division allows agencies to purchase identical or similar radio equipment throughout the year rather than consolidating purchases to obtain discounts for large volume orders.

Reply:

The Office of Telecommunications has consolidated some equipment purchases. There is no doubt, however, that a stronger stance could be taken. The question here, however, is the effect such a stand would have on the operations of the agencies involved.

Consolidated purchasing can be accomplished in the present environment by enforcing a procurement deadline in December of each year and refusing to purchase equipment either before or after that date to ensure that all equipment is ordered in the largest possible quantity, thus affording a quantity discount.

A strong stance has not been taken as it was felt that the benefits gained from this procedure were outweighed by the operational requirements of the agency served. If that deadline was missed, it would require that the agency delay equipment purchases for an entire year.

As an alternative, the Office of Telecommunications will explore the feasibility of master purchase contracts as utilized in some other states.

2. Allegation:

The Division allows agencies to specify the types of radio equipment they want.

Reply:

The Office of Telecommunications does not approve special or sole source procurements on the whim of an agency. The Office does, however, respond to operational requirements as identified by the agency when equipment is

requested. The Office of Telecommunications will not dictate operational needs to an agency. Suggestions are often made trying to solve needs with standard equipment. Where this is not possible, special equipment is ordered. 1/ *

A secondary consideration here is the fact that quite often frequency availability and Federal Communications Commission (FCC) rules dictate special equipment purchases. 2/

In conclusion, the purchase of special equipment is usually confined to large agencies that require a more complex radio system to meet their department goals. While special equipment is normally more expensive, large agency purchases are of sufficient quantity to negate most of the additional cost. 3/

* The Auditor General's comments on specific points contained in the department's response begin on page 51.

3. Allegation:

The lack of a project control program, inadequate engineering standards, insufficient training for engineers and inadequate organization of engineers results in delays in the Division completing radio projects.

Reply:

A. Training

Engineering training is a concern that has been recognized by the Office of Telecommunications. At the present time, the Office is having considerable difficulty in attracting qualified graduate electrical engineers to enter State service. The Office of Telecommunications is also having difficulty retaining engineers, particularly younger engineers. The primary reason for our recruitment and retention problems is the State's present engineering salary structure. As the Auditor General's own consulting engineer stated to us, "I believe that the State of California engineering salaries need to be increased at least 15 percent if the State is to attract and retain electrical engineers with acceptable qualifications".

The Office does not really have any choice to consider when it comes to providing on-the-job engineering training. The quality of electrical engineer that the State can currently employ dictates the need for this training.

The training of new engineers, as well as ongoing training for established engineers, should assist our Office in improving the individual engineer's productivity. Specific emphasis on the application of engineering and installation standards and keeping engineers current in the rapidly changing field of telecommunications will be essential.

While we fully agree that an increased emphasis on training is necessary, there is an up front and an ongoing cost involved. Personnel engaged in training or being trained will be removed from the normal productivity roles. If we are to replace this loss in productivity, a limited increase in personnel will be required. The net result will be an increase in overhead, which would be reflected in increased rates for service.

B. Standards

The Office of Telecommunications recognized the need for a strong engineering standards program, including the revision of existing standards and the development of new standards. To meet this need, an Engineering Standards Task Group was established and was in place prior to the Auditor General's engineering consultant's review of the Engineering Section. Approximately 35 standards are being published through the task group's actions and an ongoing standards program will be retained.

Emphasis has been placed on design and equipment standards, which are being immediately followed up with installation standards.

In addition to the basic standards activities, the Office intends to expand this involvement to include a research and development capability which will insure that State telecommunications remains at the leading edge of developing technology.

C. Organization

The Office of Telecommunications has in progress a review of the organizational structure of the Engineering Section. In the process of this review, the Office management team has been looking into several alternatives. While the established structure has several disadvantages and may need to be changed, any organization change we implement will have a direct impact on the level and responsiveness of engineering services provided and will require careful evaluation.

D. Project Control Program

The Office of Telecommunications agrees that a project control program for engineering and installation projects is required. The Office has been using a decentralized manual system for job tracking and analysis and it is not adequate to handle the task. The Office is in the process of changing from the old manual system to a more automated real time

system. At the present time, a pilot study is underway to evaluate various methodologies for inputting and formatting project data. In addition, a management analyst from the Department's Office of Program and Compliance Evaluation (PACE) is preparing a need analysis to address project control and the other activities within the Office of Telecommunications that should be automated, such as inventory control.

4. Allegation:

The Auditor General recommends that the Department of General Services Communications Division review its rate setting procedure and develop a standard methodology for its rate comparisons.

Reply:

The Office of Telecommunications is a fee-for-service organization. Rates for these services are established 14 to 16 months prior to the beginning of a fiscal year. These rates are established based on estimated service requests by client agencies, projected economic increases by the Department of Finance (i.e. salaries), projected costs by telephone industry, and available manpower. Once established, these rates are guaranteed for that fiscal year. Inevitably, these conditions change, however, since these rates are published and client agencies have utilized them in their budgeting process, it has been the Department's policy not to change these rates. Future rates are then adjusted to compensate for any unforeseen changes. This usually takes two to three years to correct due to the budgetary process. The end result is that, in any given year, the final fiscal analysis will show a positive or negative cash position.

The following table (see Attachment A) is an expanded version of Table 2 that further explains the Office of Telecommunication's fiscal posture by cost center. As shown in the table in Attachment A, guaranteeing rates, providing for anticipated telephone rate increases and absorbing unforeseen costs requires the flexibility to carry surpluses and deficits in individual cost centers until future rates can be adjusted. 4/

As an example, the 1982-83 radio services rates recovered an additional \$250,000 to partially offset these earlier losses. The \$1.8 million

TABLE 2

Fiscal Year	R A D I O S E R V I C E S				T E L E P H O N E S E R V I C E S			
	Income	Expense	- Def/Surplus	Percent Deviation	Income	Expense	- Def/Surplus	Percent Deviation
1977-78	8,145,824	8,740,422	- 594,598	6.8	12,455,399	12,430,392	+ 25,007	.2
1978-79	8,669,346	8,937,685	- 268,339	3.0	14,149,605	13,356,527	+ 793,078	5.94
1979-80	10,483,849	10,851,210	- 367,361	3.39	16,152,021	15,012,841	+1,139,180	7.39
1980-81	11,717,516	11,890,534	- 173,018	1.46	17,804,475	17,552,177	+ 252,298	1.44
1981-82	12,838,193	13,223,380	- 385,187	2.91	23,671,069	22,267,060	+1,404,009	6.31
Total	51,854,728	53,643,231	-1,788,503 ^{1/}	3.33	84,232,569	80,618,997	+3,613,572 ^{2/}	4.48

1/ a. During this 5-year period, monies collected for equipment depreciation were subject to the equipment freeze, consequently \$605,068 was not spent. From a cash balance analysis, this figure should be \$1,182,932 instead of \$1,788,503. 5/

b. Unforeseen expenses not included in the rates:

1980-81 - \$320,000 Lump sum retroactive pay adjustment.

1979-80 - \$600,000 Salary increase of 26% for technicians and 17% for engineers.
Established rates provided for a 5% increase as allowed by the Department of Finance.

2/ a. \$1,229,478 of this surplus was used to repay the General Fund for a prior obligation. 6/

b. Proposed rate increases:

1979-80 - Telephone company proposed access charges on private line service. Implementation delayed several times and is still unresolved.

1980-81 - Removal of interstate Telpak December 1980. In April 1981, State was able to provide alternate which greatly reduced fiscal impact.

1981-82 - Intrastate Telpak schedule for removal April 1982. Delayed, still unresolved.

underrecovery over five years represents a percentage deviation of less than four percent, certainly within reasonable limits. The overrecovery in the Telephone Services cost center was established in anticipation of rate increases projected by the telephone industry. These increases were delayed and the overrecovery will be applied to those increases when they occur (anticipated January 1, 1984 due to deregulation), again, a deviation of less than five percent over five years. 7/

Table 3 attempts to take a cost center and break it down by three activities within that cost center. Since the Office of Telecommunications records are kept by cost center and not by the three activities, it is virtually impossible to break the costs down as attempted in Table 3. 8/

The Auditor General suggests that the Office of Telecommunications should anticipate vacancies. Budgets are based on full staffing. Freezes established by the administration cannot be anticipated in the budgetary process. 9/

The issue of rate comparisons with the private sector suggests the Office service charges are not properly set and that methodology of selecting models must be established. Regarding the first item, as long as rates are established in advance, there will always be an error factor as it is impossible to end the year with a zero balance.

This item will be discussed with the Department of General Services Budget Office to try and establish a standard methodology for rate comparisons. However, the only valid comparison may be where the State and the private sector are repairing the same equipment. Such a comparison is currently possible as the State has a private vendor under contract who maintains State equipment. Comparing these costs shows the State to be less expensive than the private sector.

5. Allegation:

The Division's technicians take longer to repair some radio equipment than technicians employed by private companies.

Reply:

One major factor not considered in this report is the level of service provided. The Office has specifically located its shops on a decentralized basis to allow for quick response to client needs, and keep equipment out-of-service time to a minimum. Technicians usually travel to clients' facilities to repair mobile and portable radios rather than having client personnel taken away from their assigned duties to deliver equipment.

This provides a higher level of service, but does increase overall repair time by increasing travel associated with each repair. Consideration of the difference in State and private philosophy on mobile and portable radio repair, while difficult to evaluate, would tend to decrease the difference in repair times in Table I. For instance, an average of 23 percent of the time for each mobile radio repair is associated with travel to client facilities. 10/

A comparison of repair time only does not take into consideration the quality of repair which does impact total repair time. State policy is to have technicians thoroughly check all functions of the radio equipment after each specific repair to minimize additional equipment failure.

In addition, State technicians service a greater variety of equipment. With the broad variety of equipment, State technicians do not see the same types often enough to be thoroughly familiar with them. Because of this, State technicians have to be more of a generalist than a specialist in order to repair a broad range of equipment effectively. A check of private shops shows they tend to specialize in a particular equipment manufacturer. For instance, service shops franchised by Motorola usually service 90 to 99 percent Motorola equipment. State shops, on the other hand, in just portable radios alone, service radios of 26 different manufacturers.

A comparison between State technicians and private technicians is extremely subjective because many assumptions must be made concerning equipment comparability, system operation, usage, criticalness of systems, level of service, quality of service and the manipulation of the State and private sector data as there is no uniformity in recordkeeping methods. 11/

Consideration of the items identified above would more than compensate for the 16.6 percent lower productivity factor suggested in the report.

The Office of Telecommunications does have productivity reports that are used for shop evaluation and personnel proficiency. The reports are based on annual activity and provide formal productivity information for technician evaluation. Supervisors use this information, along with their personal observations and radio maintenance experience to evaluate technicians reporting to them. This is similar to what private shop managers do to evaluate their technicians. 12/

AUDITOR GENERAL'S COMMENTS ON THE
DEPARTMENT OF GENERAL SERVICES' RESPONSE

We are commenting on the Department of General Services' response to our audit report in order to provide clarity and perspective to the department's exceptions to our report. The department makes reference throughout its response to "allegations" made by the audit report. Allegations are statements of fact without proof. Our report, however, is thoroughly researched, fully documented, and totally objective. Although our report refers to the "Communications Division," for clarity because of the recent name change, our comments will refer to the "Office of Telecommunications." The comments that follow address specific exceptions noted by the department. The numbers correspond to numbers we have placed in the department's response.

- 1/ The department states that the Office of Telecommunications "will not dictate operational needs to an agency." Our report does not suggest that the office should dictate an agency's operational needs; instead our report states that once agencies determine their operational needs, the office should select equipment that meets those needs at the lowest cost to the State.
- 2/ The department states that "quite often frequency availability and Federal Communications Commission (FCC) rules dictate special equipment purchases." In contrast, our consultant said that, based on his experience, neither frequency availability nor Federal Communications Commission rules have dictated special equipment purchases.
- 3/ Regarding special equipment, the department states that "while special equipment is normally more expensive, large agency purchases are of sufficient quantity to negate most of the additional cost." To the contrary, our consultant advises that special equipment is always more expensive than standard equipment. Therefore, large quantity orders of standard equipment will be less costly than the same size orders of special equipment.
- 4/ The department states that "guaranteeing rates, providing for anticipated telephone rate increases and absorbing unforeseen costs requires the flexibility to carry surpluses and deficits in individual cost centers until further rates can be adjusted." On the contrary, the department's policy has been to attribute surpluses and deficits to the Office of Telecommunications as a whole and not to individual cost centers.

- 5/ The department states that "monies collected for equipment depreciation were subject to the equipment freeze, consequently \$605,068 was not spent." The equipment freeze is not a relevant factor when deciding whether to include depreciation expense as a cost during the periods reviewed. The fact remains that the cost of any equipment purchased has to be allocated over the equipment's useful life.
- 6/ The department states that \$1,229,478 of the surplus "was used to repay the General Fund for a prior obligation." However, as of August 29, 1983, the department had not provided us with sufficient documentation to support this statement.
- 7/ The department states that the \$1.8 million radio services "underrecovery over five years represents a percentage deviation of less than 4 percent." The department also states that telephone overcharges represent a deviation of less than 5 percent. While the department may feel that undercharges and overcharges of less than 5 percent are within reasonable limits, these undercharges and overcharges have consistently occurred for a five-year period without appropriate adjustment.
- 8/ The department states that it is "virtually impossible" to break down radio services' costs as done in Table 3 of the audit report because Office of Telecommunications' records are kept by cost center and not by the three activities. However, the cost breakdown included in the audit report represents figures developed for this comparison by Office of Telecommunications staff in conjunction with Auditor General staff.
- 9/ The department states that "budgets are based on full staffing." However, in our discussions with staff within Department of General Services' budget office, we found that vacancies (salary savings) are considered in preparing the Office of Telecommunications' budget.
- 10/ The department states that Office of Telecommunications' technicians repair times for portable and mobile radios are increased by the amount of travel associated with these repairs. However, two of the three private companies we sampled also included travel in the repair times. The third private repair shop did not have records of travel time associated with repairs; therefore, at this shop we sampled repair times excluding travel and compared them to repair times, excluding travel, at state shops. Even with travel time excluded for both entities, the third private shop was significantly faster than state shops in repairing portable and mobile radios.

- 11/ The department states that "a comparison between state technicians and private technicians is extremely subjective because many assumptions must be made concerning equipment comparability." The Auditor General staff worked closely with the Office of Telecommunications staff to develop a methodology for sampling only equipment that was comparable to both state and private shops. Descriptions of state equipment included in our sample were presented to private shops to assure that the complexity of the state equipment was similar to that of the equipment repaired by private shops. Further, as stated in our report, managers at two of the three private shops in our sample stated that they perform repairs on many types, models, and brands of equipment.
- 12/ The department states that the Office of Telecommunications has "productivity reports that are used for shop evaluation and personnel proficiency." However, the only report the office supplied to us is used, as stated in our report, primarily for budget purposes and not as a standard for evaluating technician efficiency.

cc: Members of the Legislature
Office of the Governor
Office of the Lieutenant Governor
State Controller
Legislative Analyst
Director of Finance
Assembly Office of Research
Senate Office of Research
Assembly Majority/Minority Consultants
Senate Majority/Minority Consultants
Capitol Press Corps